MISSOURI BOTANICAL GARDEN

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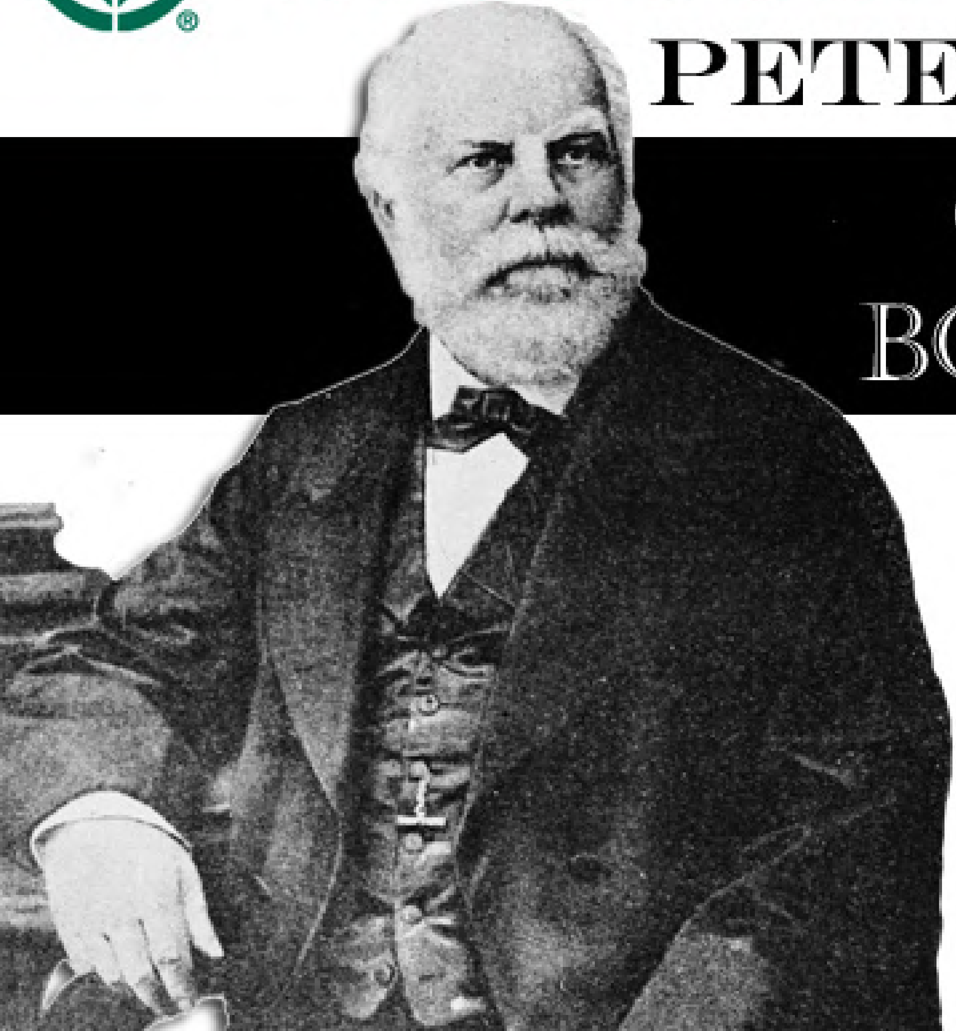
# GEORGE ENGELMANN BOTANICAL NOTEBOOKS



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Abgeschickt an Gray!

# The Cuscutineae of the ~~Neighborhood~~ vicinity of St Louis Missouri

by George Engelmann MD.

During a residence of 9 years I have collected in this ~~neighbor~~ ~~vicinity~~ neighborhood several forms of Cuscutas, which appeared to me different species but neither ~~the~~ the books which I consulted nor the botanists whose opinion I requested could give me satisfactory answers. During a tour in Europe last year I met the same difficulties, I found in different collections different species, some of them communicated by myself, but nothing further was decided. So I ~~commenced~~ examined the genus or rather the tribe for there are two genera, myself, the living plants ~~in nature~~ as well as the dried specimens in my herbarium and ~~offer the result of my~~ was astonished to find from 5 to 6 different species where only one the Cuscuta americana was noticed in the books, I offer the result of my investigations to the botanical public, in the expectation × that in other parts of our wide spread country other species may

× that their attention may in that way be directed to this neglected ~~genus~~ tribe and

be discovered. I take this opportunity to ~~add that~~ request botanists to communicate specimens of Cuscutas (with their parent plant) to me, as well as other rare plants of their region, and offer in exchange to them ~~[illegible]~~ european (german french and swiss) as well as the rarer plants of this neighborhood.

Since writing the above ~~I have been kindly furnished~~ a number of specimens have been kindly communicated to me by Dr A. Gray and Mr John Carey of New York, among which I find several species as will appear below, which do not grow in this vicinity.

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Convolvulaceae Juss. Cuscutineae I.

Tribus II. Cuscutineae Link. folia squamiformia, Embryo spiralis circum albumen mucilaginosum convolutus, acotyledoneus.

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German austr. Pedemont.

In pratis udis, (turfosis) prope
Ingelheim (Rhenus) et Griesheim
(Darmst.)
1826

5408

Cuscutineae

A remarkable tribe attached to Convolvulaceae and bearing to them just the same relation which Monotropeae bear to Pyrolaceae and Orobancheae to Antirrhineae: they are the phaenogamous fungi, destitute of verdure and proper leaves (in whose place they bear scales but are never leafless in the full meaning of the word) aping in the structure of their flowers the higher organized plants; an exertion of Nature, which we ~~find~~ discover again in the animal Kingdom in the Entozoa. And to Entozoa the Class of Plants, of which we are speaking, bears another striking resemblance: they are parasitical ~~live~~ on other plants, the Cuscutineae on their stems, ~~the~~ most Orobancheae on their roots and the Monotropeae on their mouldering remains; ~~We may call them therefore very properly E.~~ As we call the animals of whom we have been speaking Entozoa, we may call these plants Epiphyta growing on plants.

correcter im Styl
u. in Ausdruck

[illegible]

~~There is however a remarkable circumstance~~

The Cuscutineae are distinguished from the other Epiphyta by their growing on the stems (and occasionally the leaves) of other plants, and by their large seeds which resemble very much the seeds of Convolvulus.

by their twining.

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Monotropeae and Orobancheae have extremely minute seeds, in some respects, similar to the Spores of Acotyledoneous plants; but the large seeds of Cuscutineae are easily examined, and present an embryo which is spirally rolled ~~around~~ a mass of mucilaginous glutinous albumen.

The Cuscutineae germinate in the ground but soon find the plants round which they twine ~~[illegible]~~ – and they climb constantly to the left & as all Convolvulaceae do – There they strike their papillose roots in the Epidermis and draw their principal substance from them. ~~their~~ stem soon withers and leaves the ~~plant~~ ~~Cuscutineae~~ upper parts entirely parasitical on the mother plant, ~~which frequently suffers so much from its the [illegible] of its effect~~ whose stunted growth frequently proves the want ~~its~~ suffers itself ~~though~~ the ~~nourishment~~ abstraction of by the intruder.

~~Insert here 3.b~~

Similar to the Entozoa, where the same species is always found in the same or a nearly related animal, so the Epiphytes generally grow on the same or similar plants. This is more

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constantly the case in the Orobancheae, but it holds good also in ~~the Cuscutaceae~~ family which we consider here. ~~We must~~ One circumstance ~~how~~ however we must not loose sight of: Orobanche strikes its root in the epidermis of the root of its favorite plant and continues there; but Cuscuta germinates in the ground and twines round the plant which is to give it nourishment and it frequently twines round all the plants in the neighborhood and knows to extract from them its nourishment; some of these species however are more constant than others; so for example the European Cuscuta Epilinum, which I have never seen any where but on flax; or the Lepidanche Compositarum, which is always — so far as my investigations go, confined to Solidago or Helianthus ~~and a few~~ other Compositae. On the Other side we have some that feed ~~[illegible]~~ promiscuously on most of the Plants, they can reach, so is the European Cuscuta Epithymum or the American C. Polygonum +); Nevertheless they are rarely ever found where the plant they ~~principally~~ in preference ~~specially~~ ~~feed on~~ extract nourishment from, is not in the neighborhood.

We have therefore ventured to adopt~~ed~~ the Nomenclature, which some modern botanists

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+) In two instances have I found two different species growing on the same stalk ~~plant~~: Cuscuta Cephalanthi and Polygonorum on a Boehmeria and Cuscuta Coryli β and Lepidanche Compositarum & ~~on~~ a Solidago.

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Cuscuteae 5.

have used in designating the species of Orobanche, naming them after the parent plant: Orobanche Galii, Eryngii etc ; Cuscuta Coryli, Cephalanthi etc — thereby designating an important momentum in the history of the plant and facilitating the examination of specimens

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Cuscutinearum tribus

944-954

et Genus

Cuscuta.

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var. foliis variegatis

[illegible]

H. B. Fr 1826

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Cuscut~~aceae~~ I

Gen. I. Cuscuta Lin.

Calyx monosepalus 4–5 fidus, persistens Corolla campanulata vel urceolata 4–5 fida. Styli 1–2. Capsula 2 locularis, 4 sperma,

Twining ~~p~~ parasitic plants bearing the general character of the family; F The ~~[illegible]~~ inflorescence is a cyme (with a central flower ~~which~~ opening first and axillary flowers ~~which~~ ~~come~~ ~~after~~ are ~~devel~~ developed later) with ~~the~~ whitish sessile or pedunculate flowers more ~~or~~ less clustered in ~~some~~ some and rather loose in other species – called in the books conglomerate and paniculate ~~The stem has~~ ~~and the scaly leaves a whitish yellowish or orange~~ Colour; –

F the Stem is filiform, simple or generally branched with ~~the~~ scaly leaves ~~has~~ of a whitish yellowish or orange colour. ~~The flowers~~ ~~whitish~~ ~~are sessile or more or less pedunculate~~

Generally some bracts may be observed in the inflorescence ~~subtending the pedicels or~~ on the peduncles and on the pedicels but they are always ~~plainly~~ easily distinguished from the calyx.

The first or central flowers of the inflorescence are mostly 5 parted, but the lateral ~~or~~ secondary ones are in some species regularly 4 parted in others nearly always 5 parted; and in some species again we find 4 and 5 parted flowers ~~in~~ nearly equal proportion.

The calyx is constantly monosepalous, ~~generally~~ deeply and

Arabis bellidifolia L.

A. scabra All.
pumila Wulf.
„ nutans Mönch. W.
Turritis alpina Braun var.
A. intermedia Hopp. var.

Spr II, 893
R II, 367

Alp. Europ. ~~med~~

H. B. L. 1825

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irregularly 4-5 parted and persistent

The Corolla is monopetalous cylindric urceolate or campanulate with the limb erect, ~~campanulate~~ patent or reflexed, and ~~not persistent~~ together with the Stamina in a marcescent state ~~top~~ ~~either~~ at the base of the capsule persistent or more frequently separated from its insertion and covering its top. Its texture is in some species more membranaceous, in others ~~[illegible]~~ thicker and more fleshy.

The stamina are united with the tube of the corolla up to the point where it is divided into the parts of the limb. Near their base ~~they bear sc~~ within the tube of the Corolla they ~~bear~~ produce scales of different construction which evidently are no separate organs but only appendices of the Stamina. They are never wanting; at least in all the species which I have examined and some of which are said to have no scales I have found them. In some species they consist only of one or a few teeth at both sides of the filament (C. Coryli) in most ~~others~~ they separate ~~from it~~ as a distinct lamina from it and are in some bifid in others undivided, but in all either crenulate or fimbriate or laciniately ~~and even~~ pinnatifidly divided. In some species they are

Arabis Turrita L.
" ochroleuca Lam
" umbrosa Crantz

Spr II, 892
Röhl II 368

Europ. austr. Anglia (in muris Cantabrig)

H. B. Darmst.
1826

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erect, appressed to the tube of the Corolla; in others they are convergent, shutting up the tube of the corolla, and including the ovary.

~~There is one, or generally 2 styles~~
~~Styles one, and generally 2~~

The Ovary is always 2 celled, four ovuled; styles two (in one species united into one) + in a few species supported ~~inserted~~ by a stylopodium; The Stigma is either filiform (in the european) or capitate (in the american) species. —

+ frequently unequal in length.

The Capsule * it is 2 celled and sometimes four seeded, but more generally by abortion, 3, 2 and even one seeded. In the European species it separates by circumscission from its base leaving the ~~Disk~~ pericarp with the base ~~[illegible]~~ persistent on the Calyx. In The American Cuscutae the capsule does not appear to open regularly, but it separates easily from the calyx when ripe.

* is roundish, ~~with the~~ and bears the persisting styles and (if it is present) the stylopodium

I have seen very few irregularities in the flowers of Cuscuta. Sometimes I found ~~the~~ one or the other part of the Corolla partially or entirely changed into an ~~[illegible]~~ Stamen, and in other instances I discovered 3 or 4 carpellary capsules.

~~Fig. 6 [illegible]~~

Cuscutineae 1.

Convolvulaceae Juss.

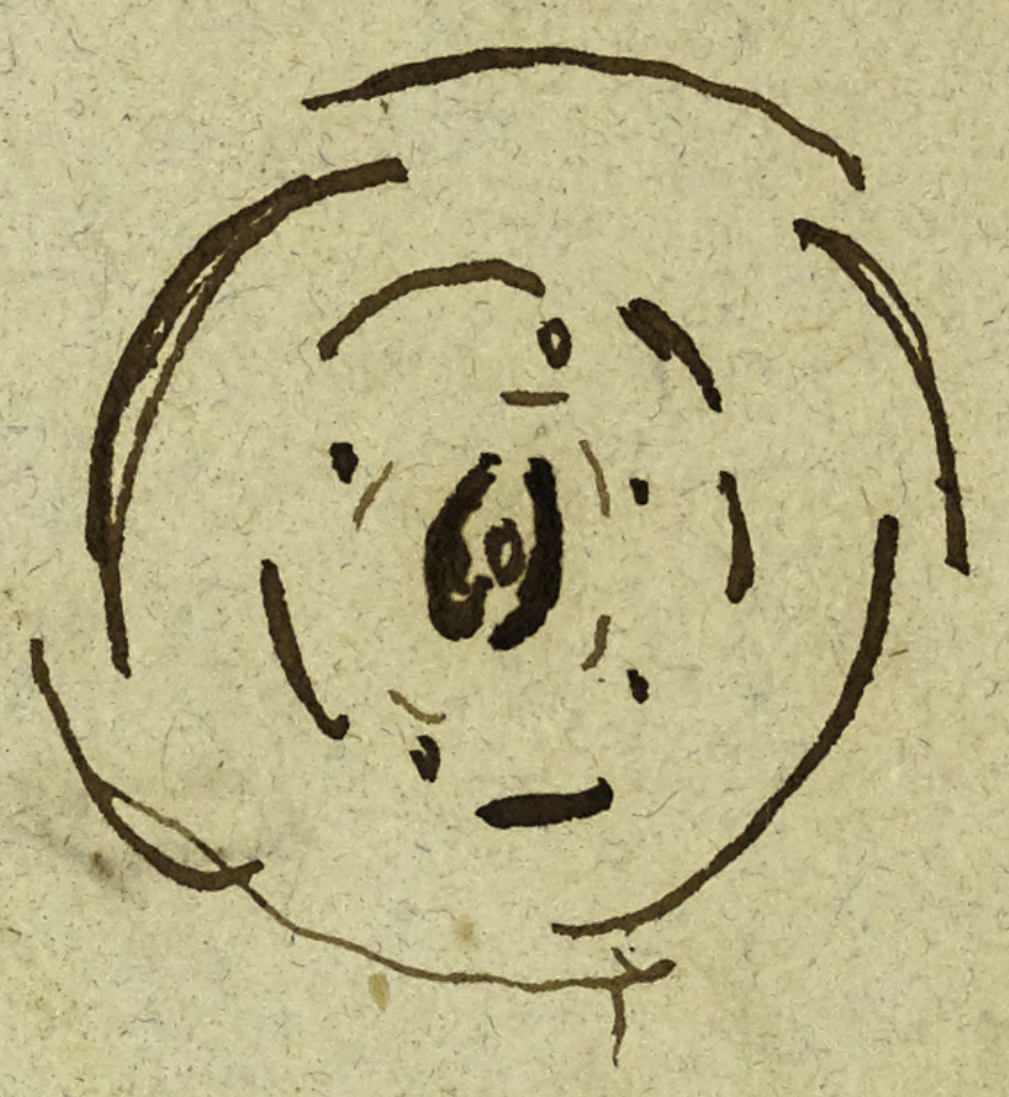
Tribus II Cuscutineae Link. folia squamiformia (~~non nulla~~); Embryo spiralis, circum albumen mucilaginosum convolutus, acotyledoneus

Genus 1. Cuscuta Lin

Calyx monosepalus 4-5 fidus; Corolla campanulata vel urceolata 4-5 fida, Styli 1 - 2 Capsula bilocularis 4 sperma, circumscissa.

Genus 2. Lepidanche

Calyx squamis pluribus imbricatus, caeterum ut in Cuscuta.



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Lepidanche 1

Gen 2. Lepidanche

X/ Lepis, a scale, αγχειν to strangle; a scaly plant strangling those on which it grows

Calyx squamis pluribus imbricatus persistens, Corolla tubulosa, ~~4~~5fida styli 2. capsula ~~1~~ 2locularis ~~[illegible] 2 sperma~~
2-4 sperma

Plants very similar to Cuscuta when young but different in their appearance when in flower or fruit. The stem ~~is then~~ that connects the different clusters of flowers is then dead and nothing remains ~~but~~ these clusters, which consist of innumerable sessile flowers, surrounded by a great number of scarious scales, ~~which~~ This gives the plant the appearance of an ~~immense~~ irregular convolut of scales, ~~twining with one or more~~ spirally and most tightly twisted ~~surrounding (once or twice)~~ rd the stem of the mother plant, which looks from a distance as if a rope was twisted round it. The flowers are so close together that many of them do not come to perfection, but are strangled as it were, and show nothing but a bunch of scales, and many others that appear to be perfect, do not ~~produce~~ mature seed.

The principal difference however ~~of~~ this

All this refers more to L. Compositarum alone than to the Genus Lepidanche

Braſsica Napus. L.
ad Br. oleraceam. L.

Spr. II, 909
R II, 359

Fr. cult. 1825

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genus and Cuscuta consists in the calyx, which is not monosepalous but consists of a number of ~~fr~~ imbricating scales which are not united at the base. These scales exceed 10 but the 2 to 5 outer ones are ~~much~~ smaller & may be considered as bracts; the 10 inner ones are nearly equal in shape and size, crenulate and reflexed ~~[illegible]~~ and appear to constitute the calyx proper.

The Corolla and stamens with their scales are in all respects similar to Cuscuta; so is the ovary, but the unequal styles are generally longer in proportion and the stylopodium nearly as large as the ovary proper or even larger.

The ovary is bicelled, 4-ovulate but in the ~~fully developed~~ ripe Capsule I have never seen more than two seeds, separated by the incomplete dissepiment. Frequently there is only one seed.

Fr 1824

Europ. omnis. Afri med

5418